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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/854,611	05/14/2001	M. James Grieve	DP-302895	4829

7590 02/24/2004  
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Troy, MI 48007-5052

EXAMINER

WINTER, GENTLE E

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 02/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/854,611

Applicant(s)

GRIEVE ET AL.

Examiner

Gentle E. Winter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 18, 19 and 26-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-3, 18, 19, 26-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \*   c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election of Group 1 claims 1-3 and 18-19 in Paper No. 121503 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by the reference “How Oil Refining Works” (HSW)

Claim 1 recites a method comprising the steps of supplying Diesel fuel to a fractional distillation device in fluid communication with a reformer, wherein the Diesel fuel consists essentially of compounds having a carbon number of about C8 to about C20, fractionally distilling said Diesel fuel to produce a light fuel stream and heavy fuel stream; and reforming the light fuel stream in said reformer to produce a reformat.

Figure 3, page 8 of HSW discloses a fractional distillation device (distillation column) in fluid communication with a reformer (at the “Naphtha” stream), wherein the Diesel fuel consists essentially of compounds having a carbon number of about C8 to about C20, fractionally distilling said Diesel fuel to produce a light fuel stream (Naphtha) and heavy

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fuel stream; and reforming the light fuel stream in said reformer to produce a reformat (the post reformer stock is, by definition, a reformat).

Claim 2 indicates that the heavy fuel stream is burned in a burner to generate thermal energy. Diesel distillate is disclosed to be used as heating oil. See page 3.

## **DETAILED ACTION**

### ***Response to Remarks***

2. Applicant argued that the HSW reference discloses feeding crude oil with a chain length of C4-C80 and that the present invention is drawn to include diesel fuel, the diesel fuel has chain length of about C8 to C20. Applicant thereafter asserts that since the HSW reference fails to specifically teach the weight for the Diesel fuel the fuel is in some way not disclosed. The argument is not persuasive. The feedstock includes diesel and the reformer, in creating the longer chain liberates a stream of hydrogen, as explicitly set forth in the HSW reference in the "Reformer" section. The reference discloses the disclosed limitations, see below.

3. As to the arguments drawn to the obviousness rejection, wherein applicant argues that the reformer is different or would not produce the same results, the argument is not persuasive, both the reference and the claims teach a reformer.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Figure 3, page 8 of HSW discloses a fractional distillation device (distillation column) in fluid communication with a reformer (at the "Naphtha" stream), wherein the Diesel fuel consists essentially of compounds having a carbon number of about C8 to about C20, fractionally distilling said Diesel fuel to produce a light fuel stream (Naphtha) and heavy fuel stream; and reforming the light fuel stream in said reformer to produce a reformate (the post reformer stock is, by definition, a reformate).

Claim 2 indicates that the heavy fuel stream is burned in a burner to generate thermal energy. Diesel distillate is disclosed to be used as heating oil. See page 3.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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1. Claims 18, 19, and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over HSW and United States Patent No. 4,522,894 to Hwang et al. Each and every limitation of claims 18, 19, and 3 is identically disclosed in HSW as set forth above; except that HSW fails to explicitly disclose an endothermic steam reformer. The same is believed inherent in the reference to the production of hydrogen at page 7 of HSW, however to be rigorous, Hwang discloses the missing elements and explicitly provides the motivation for making the claimed combination. Specifically, Hwang discloses “a fuel cell power plant” that includes an “autothermal reformer” for on-site generation of the hydrogen-rich fuel supplied to the fuel cell stack. The autothermal reformer includes a second catalytic zone for carrying out steam reforming, an endothermic reaction. See e.g. column 5, line 14 *et seq.* The artisan would have been motivated to make the instant combination for the reasons explicitly set forth in Hwang, namely for the for on-site generation of the hydrogen-rich fuel supplied to the fuel cell stack. All diesel fuel is hydrotreated.

2. Claims 1-3, 18, 19 and 26-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over 5,686,196 to Singh et al. (Singh) and United States Patent No. 4,382,851 to Angevine et al. (Angevine).

The claimed invention is drawn to a method comprising the steps supplying diesel fuel to a fractional distillation device (fuel comes from “refined petroleum distillates” column 2, line 24 distillates come from distillation devices). The diesel was supplied to a fractional distillation device in fluid communication with a reformer (Singh is not clear that the fractional distillation device is in fluid communication with the reformer however since

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the claim is drawn to a method of using a strategy, whether the diesel is produced on site or is delivered is not materially different; in both cases the diesel is supplied to a fractional distillation column and thereafter to a reformer. Angevine is provided to show the distillate diesel formation from the base feed stock. The claims further disclose that the diesel fuel consists essentially of compounds having a carbon number of about C8 to about C20. Often distillation products are defined in terms of their thermal cut, however the range of C8 to C20 fits with the accepted definition of cuts including diesel. The step of reforming, with a steam reformer, the light stream to produce a reformat comprising syngas and utilizing the reformat in a solid oxide fuel cell is disclosed at column 3, line 25 *et seq.* of Singh. The hydrotreating is further disclosed in the figure of Singh and relevant associated text. The solid oxide fuel cell is similarly disclosed in Singh, see the figure and relevant associated text.

### ***Conclusion***

1. Applicant's amendment/addition of claims necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

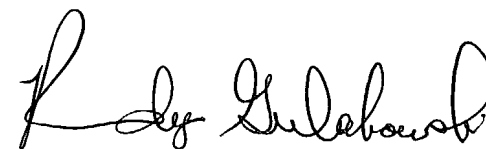
3. The prior art made of record and not relied upon, discussed previously is still considered relevant.
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gentle E. Winter whose telephone number is (703) 305-3403. The examiner can normally be reached on Monday-Friday 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (703) 308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications. The direct fax number for this examiner is (703) 746-7746.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Gentle E. Winter  
Examiner  
Art Unit 1746

February 12, 2004



RANDY GULAKOWSKI  
SUPERVISORY PATENT EXAMINER  
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